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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,494	11/28/2003	John Patrick Perkins		7670
<div>7590 06/25/2007</div> <div>WILLIAM H HOLT LAW OFFICES OF WILLIAM H HOLT 12311 HARBOR DRIVE WOODBIDGE, VA 22192</div>				
			<div>EXAMINER</div> <div>MAYEKAR, KISHOR</div>	
			<div>ART UNIT</div> <div>1753</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE</div> <div>06/25/2007</div>	<div>DELIVERY MODE</div> <div>PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/722,494	Applicant(s) PERKINS, JOHN PATRICK	
	Examiner Kishor Mayekar	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 8-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/857,880.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The specification is objected because the headings introducing various paragraphs of the specification have been omitted.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).

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(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

2. The disclosure is objected to because of the phrase "figure" in pages 4-7 of the specification is not in the format as --Figure--. Appropriate correction is required.

Claim Objections

3. Claims 1, 5, 7, 8 and 16 are objected to because of the following informalities:

- o regarding claim 1, it is preferred to delete the phrase "so as" and to correct the phrase "characterised" to the US spelling as --characterized--;

- o regarding claims 5, 7 and 8, it is preferred to correct the phrase "energise" to the US spelling as --energized--;

- o regarding claim 16, the recitation "0,1 m" needs to change to --0.1 m--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-10, 12-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlin (US 2,578,505) in view of Dion et al. (US 6,361,747 B1) and Sachs et al. (US 4,375,991). Carlin's invention is directed to a method and an apparatus for the supersonic agitation of fluids in a container. Carlin discloses in Figs. 1 and 2 and in col. 1 line 56 through col. 2, line 57 that the apparatus comprises all the recited vessel and multiplicity of ultrasonic transducer means and the method comprises the recited steps of selecting, attaching, enclosing, connecting and energizing. There, Carlin discloses that the fluid is stationary in a container and the transducer means are close to each other. The difference between Carlin and the above claims is the recited container diameter, in the use of the apparatus for the claimed apparatus, and the detailing of operating conditions of the ultrasonic transducer means in the claimed method. Dion teaches in a reactor for the treatment of fluids by acoustic cavitation the frequencies used in the treatment of fluids by acoustic cavitation (col. 1, lines 15-24). Sachs teaches in a method and apparatus for treating fluids by acoustic cavitation that the use of a frequency between 18 to 80 kHz (col. 10, lines 57-58) and a power of 0.5 to 2 W/cm² (col. 11, lines 2-17). As to the container diameter, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Carlin's

teachings because the selection of the container diameter in the treatment would be within the level of ordinary skill in the art. As to the intended use, the manner or method in which such apparatus is to be utilized is not germane to the issue of patentability of the machine itself. As to the detailing of operating conditions of the ultrasonic transducer means, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Carlin's teachings as shown by Dion and Sachs because they are typical frequencies and power for the operating of the acoustic cavitation and their selection would also be within the level of ordinary skill in the art. As to the recited power dissipation in the claimed method, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art. *In re Aller* 105 USPQ 233; *In re Boesch* 205 USPQ 215.

As to the subject matter of each of claims 12-15 and 20-23, Dion teaches it in col. 4, lines 17-48. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Carlin's teachings as shown by Dion because this would result in energizing a separate group of the transducer means.

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6. Claims 8-10, 12-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dion '747 in view of Sachs '991. Dion 's invention as applied above is directed to reactor with acoustic cavitation. Dion discloses in Figs. 1-2 and in col. 1, lines 15-24, col. 4 lines 17-48 and col. 6, lines 18-41 that the apparatus comprises all the structures as claimed. The difference between Dion and the above claims is the recited container diameter, in the use of the apparatus for the claimed apparatus, and the detailing of operating conditions of the ultrasonic transducer means in the claimed method. Sachs teaches in a method and apparatus for treating fluids by acoustic cavitation that the use of a frequency between 18 to 80 kHz (col. 10, lines 57-58) and a power of 0.5 to 2 W/cm² (col. 11, lines 2-17). As to the container diameter, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Dion's teachings because the selection of the container diameter in the treatment would be within the level of ordinary skill in the art. As to the intended use, the manner or method in which such apparatus is to be utilized is not germane to the issue of patentability of the machine itself. As to the detailing of operating conditions of the ultrasonic transducer means, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Dion's teachings as shown by Sachs because they are typical frequencies and power for the operating of the acoustic cavitation and their selection would also be within the level of ordinary skill in the art. As to the recited

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power dissipation in the claimed method, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art. *In re Aller* 105 USPQ 233; *In re Boesch* 205 USPQ 215.

7. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Carlin as modified by Dion '747 and Sachs '991 or Dion '747 as modified by Sachs '991 as applied to claims 8-10, 12-18 and 20-24 above, and further in view of Desborough et al. (US 5,658,534). The difference between either of the references applied above and the instant claim is the provision of double walled container and the provision of a low attenuation buffer liquid in the space between the walls of the container. Desborough shows in a device for subjecting liquid to a high ultrasonic intensity the provision of the low attenuation buffer liquid in the space between the coupler and the container (see abstract and Fig. 2). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified each of the references' teachings as suggested by Desborough because this would suppress the erosion at the end of the coupler.

Conclusion

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berger et al. (US 5,484,573) teaches in a reactor for carrying out chemical reaction with ultrasound the number of ultrasonic inducers to the size of the reactor, the operating of the ultrasonic transducer either independent or individually (col. 2, lines 21-51).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

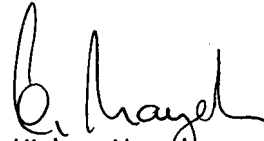
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Representative or access to the automated information system, call 800-786-9199 (IN

USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'K. Mayekar', written in a cursive style.

Kishor Mayekar
Primary Examiner
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